

PATENT APPLICATION**ABSTRACT OF THE DISCLOSURE**

[52] An online transaction is effected between a user system, a merchant system and an issuer system. The user system generates a one-time number (OTN) to use as a card number for a transaction with the merchant. The user system generates the OTN as a function of various parameters and sends the OTN to the issuer and to the merchant. With the issuer communication, the user is first authenticated, so the issuer can associate the received OTN with the user even if the user's identity cannot be fully discerned from the OTN alone. In authenticating the user with the issuer, and possibly other authentications, the user sends the issuer a signed challenge where the challenge is a sequential challenge or a function of a prior challenge provided by the issuer. The issuer responds with an approval/denial message and, in the latter case, includes the next challenge to be used.